Tiffany, Bruce

From: Tiffany, Bruce
Sent: Friday, June 02, 2006 2:07 PM
To: Heinz, Dana; Himes, Tammy; Grothkopp, Fritz
Cc: Renaud, Rick; Newborn, Greg
Subject: RE: 421168.040: Sampling and Analysis Plan - KCIA Stormwater Vault Sediment Sampling
Attachments: SAP-KCIA_Sampling.pdf; KCIADrains.pdf; KCIA_COC_Form.xls

I caught a couple of typos in the previous version. Use this one instead.

From: Tiffany, Bruce
Sent: Friday, June 02, 2006 1:42 PM
To: Heinz, Dana; Himes, Tammy; Grothkopp, Fritz
Cc: Renaud, Rick; Newborn, Greg
Subject: 421168.040: Sampling and Analysis Plan - KCIA Stormwater Vault Sediment Sampling

Team;

Here is the sampling and analysis plan (SAP) for the KCIA stormwater vault sediment sampling.

We are scheduled to start Tuesday morning. Let me know if there are any questions.

- Bruce

MEMORANDUM

From: Bruce Tiffany
To: Fritz Grothkopp, Dana Heinz, Tammy Himes, Greg Newborn, Rick Renaud
cc:
Date: June 2, 2006
Re: Sampling and Analysis Plan for Sediment Sampling of Stormwater Structures at King County International Airport

INTRODUCTION

In support of Lower Duwamish Waterway sediment remediation source control, this sampling and analysis plan (SAP) covers the field and laboratory activities associated with sediment sampling of stormwater structures at the King County International Airport (KCIA). This work is being performed to evaluate if portions of KCIA contain chemicals of concern in sufficient amount to cause a concern for the potential recontamination of the Slip 4 early action site.

Sediment sampling and reporting of results will be performed by staff of the King County Industrial Waste Program. Staff of the KCIA will provide an escort to Industrial Waste Program staff while they are conducting work on KCIA property.

Chemical analyses will be performed at the King County Environmental Laboratory (KCEL).

The work will be performed in early June 2006.

SAMPLING LOCATIONS

A total of eight (8) stormwater vaults will be sampled for sediment at KCIA. The locations of these stormwater structures are identified on **Figure 1**.

STORMWATER VAULTS

The following stormwater vaults will be sampled:

- 1541
- 1640
- 1650
- 1657
- 1670
- 1680
- 1756
- 1757

CATCH BASINS

- No catch basins will be sampled.

A field reconnaissance on June 1, 2006 indicated that one potential sampling location (Catch Basin 1741 – see **Figure 1**) was dry and contained rocks approximately ½-inch diameter and slightly larger. It is possible that the upgradient storm drain line is abandoned. No further action will be taken as the remaining stormwater structures provide sufficient coverage of the KCIA drainage area.

SAMPLE IDENTIFICATION

Each sample identification will include the acronym for the site (KCIA), the 4-digit identifier of the stormwater structure, and the 6-digit version of the sampling date (KCIA-####-MMDDYY). For example, a sediment sample collected on June 7, 2006 at Stormwater Vault 1541 would have the following sample identification:

- KCIA-1541-060706

SAMPLE COLLECTION

A total of eight (8) samples will be collected at the stormwater structures previously identified. Sampling will be conducted by Industrial Waste Program staff with an escort provided by KCIA staff.

Please note the following:

- Safety vests must be worn in active areas of the airport.
- Ear plugs must be available for use.
- Nitrile gloves must be worn when handling equipment or sample containers that come into contact with stormwater sediments.

All work is being conducted at the discretion of KCIA. Industrial Waste Program staff must vacate selected areas of the airport when directed by KCIA staff.

SAMPLING METHOD

The sediment samples from the eight (8) stormwater vaults will be collected by attaching a 4-liter stainless steel beaker to a long telescoping metal pole. The beaker is attached to the pole by use of a hole drilled into the beaker and a metal clip attached to the end of the pole. The beaker is lowered to the bottom of the vault and scraped along the bottom in order to draw sediment into the beaker. When full, the beaker is raised to the surface and the contents transferred to a pre-cleaned stainless steel mixing bowl with stainless steel spoon. The outlet

chamber of each vault will be sampled first. If the outlet chamber does not have sufficient sample, additional sediment will be collected from the middle chamber of the vault. If there is still insufficient sample, additional sediment will be collected from the inlet chamber as well. All sediments collected must be thoroughly homogenized prior to placement in sample containers.

The sediment in the mixing bowl is thoroughly homogenized by mixing with the stainless steel spoon. If present, particles greater than ¼-inch are removed from the mixing bowl with the stainless steel spoon. The homogenized sediment mixture is then transferred to pre-cleaned laboratory sample containers. The sample containers are then placed into Ziploc bags and placed in the chilled laboratory cooler.

SAMPLING EQUIPMENT

The following sampling equipment will be required, at a minimum:

- 1 large telescoping metal pole w/hook on the end.
- 1 4L stainless steel beaker (w/drilled hole at rim) per station
- 1 to 2 ice chests (coolers) – ice to be replenished each day
- 1 large stainless steel mixing bowl per station
- 1 large stainless steel spoon per station
- 1 roll of aluminum foil
- Project SAP
- Field sheets and labels
- COC forms
- 1 set of lab sample containers per sampling location
- 1 pair of Nitrile gloves per person per sampling location
- 1 dozen pair of foam ear plugs
- 1 reflective safety vest per person
- 1 pair of safety glasses per person (to have on hand and use as required)
- 1 hard hat per person (to have on hand and use as required)
- 1 or 2 large garbage bags
- 1 or 2 polypropylene wash bottles containing laboratory RO water

SAMPLING EQUIPMENT DECONTAMINATION

All of the stainless steel sampling equipment will be precleaned at KCEL and wrapped in aluminum foil prior to use in the field. The only decontamination required will be the rinsing of the telescoping metal pole between sampling stations. The pole will be rinsed by using a polypropylene squeeze bottle containing laboratory reverse osmosis (RO) water.

SAMPLE CONTAINERS/SAMPLE PRESERVATION

The following containers will be used for each sample location:

- Polychlorinated Biphenyls (PCBs) – 8oz glass jar
- Semivolatile Organic Compounds (SVOCs) – 8oz glass jar
- Total Solids(TS)/Total Organic Carbon (TOC) – 4oz wide-mouth glass jar
- Metals (As/Cu/Pb/Hg/Zn) – 8oz HDPE jar
- Total Petroleum Hydrocarbons (TPH)/Diesel- and Oil-Range – 8oz glass jar

Upon collection, all samples will be preserved by being placed in an insulated, chilled cooler containing ice.

SAMPLE COLLECTION HIERARCHY

If insufficient sediment is available to collect full samples, the following hierarchy will be followed:

1. Polychlorinated Biphenyls (PCBs) and Total Solids
2. Total Organic Carbon (TOC)
3. Semivolatile Organic Compounds (SVOCs)
4. Metals (As/Cu/Pb/Hg/Zn)
5. Total Petroleum Hydrocarbons (TPH)/Diesel- and Oil-Range

A sample for PCBs/Total Solids would be collected first, followed by TOC, SVOCs, Metals, and TPH, respectively.

FIELD DUPLICATE

One field duplicate sample will be collected during the sampling event. The field duplicate sample will be submitted for PCB analysis and Total Solids analysis only. The field duplicate sample will be collected from the same homogenized mixing bowl as the original sample. One of the eight (8) stormwater vaults will be used for collecting the field duplicate sample. The sample ID for the field duplicate will use the same convention as the original sample with "FD" added to the end of the stormwater vault ID. For example if Vault 1670 were sampled on June 7, 2006, the field duplicate sample ID would be as follows:

- KCIA-1670FD-060706 (**Note:** for PCB analysis and Total Solids analysis only)

FIELD OBSERVATIONS

Information on sample collection will be entered into a field notebook. Information to maintain in the field notebook includes:

- Name(s) of sampling personnel
- Sample ID
- Sample collection date/time
- Observations of sample condition
- Comments

SAMPLE RELINQUISHMENT/CHAIN-OF_CUSTODY

Samples will be stored in the chilled cooler until delivery to KCEL. Samples will be relinquished to KCEL by signing a completed KCEL chain-of-custody form (**Figure 2**). Upon receipt at KCEL, samples will be transferred to a laboratory refrigerator.

CHEMICAL ANALYSES

The following analyses will be conducted for each sample location:

- PCBs – EPA Method 8082
- SVOCs (PAH and Phthalates) – EPA Method 8270
- Total Solids – Standard Methods No. 2540-G
- TOC – EPA Method 9060
- Metals (As/Cu/Pb/Hg/Zn) – EPA Methods 200.8 & 245.1
- Diesel- and Oil-Range TPH – Method NWTPH-Dx

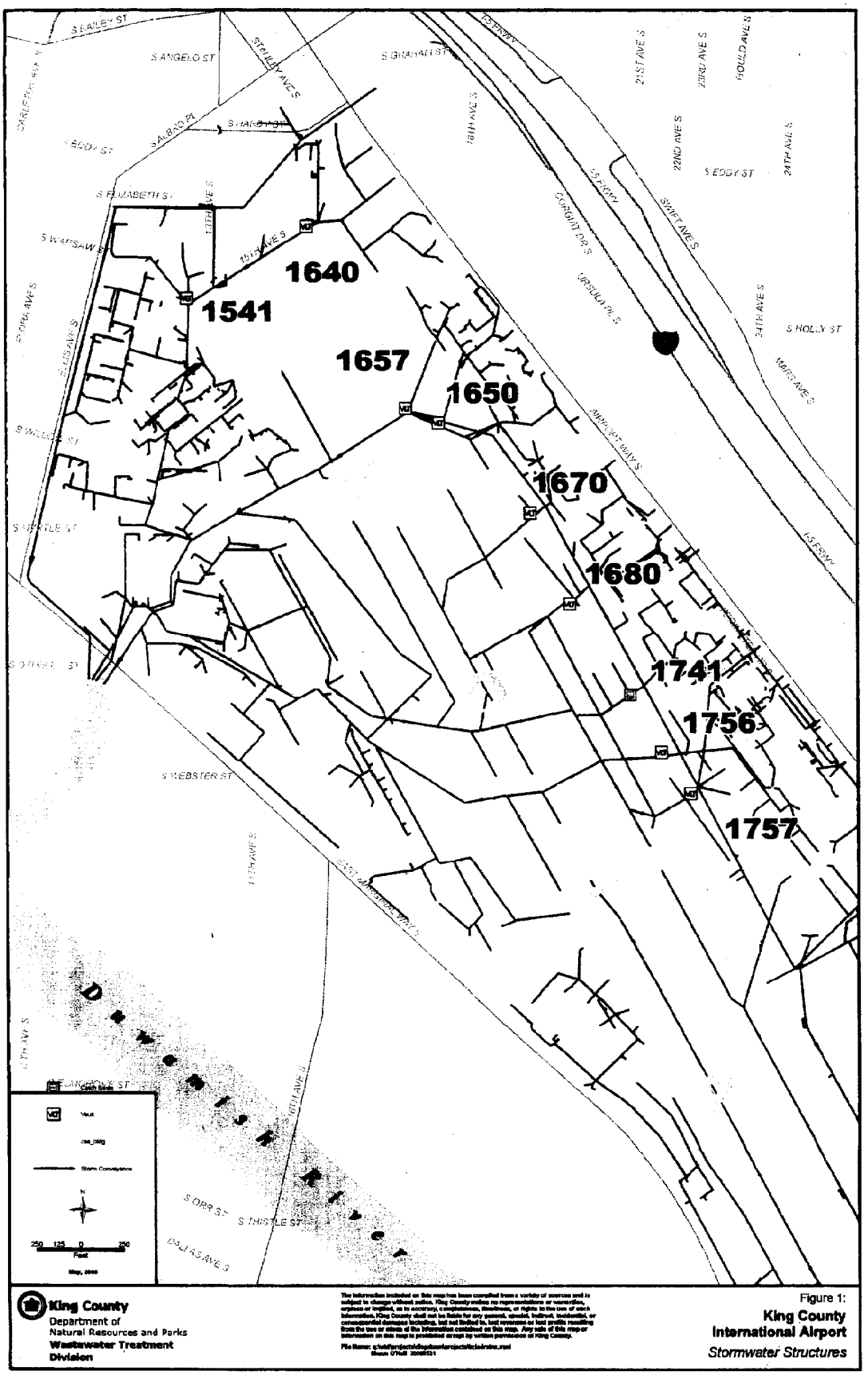
CONTACTS

- KCIA (Escort) – Patty Tonsgard (T: 206-423-1311)
- KCIA – Rick Renaud (T: 206-296-7427)
- KCIA – Raleigh Salazar (T: 206-423-3260)
- Industrial Waste Program – Greg Newborn (T: 206-263-3022 – C: 206-427-4945)
- Industrial Waste Program – Bruce Tiffany (T: 206-263-3011 – C: 253-722-7489)
- KCEL – Fritz Grothkopp (T: 206-684-2327 – Pager: 206-469-3938)

OTHER INFORMATION

- KCIA Visitor Badges – Go To: Airport Maintenance Shop (6518 Ellis Avenue S.)
- KCIW Project Number – 421168.040

Figures



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SEA423309

Figure 2

KING COUNTY ENVIRONMENTAL LABORATORY *322 West Ewing Street Seattle, WA 98119*

LABORATORY WORK ORDER

Project Name: KCIA - Sediment Sampling of Stormwater Structures

Project Number: 421168.040

Laboratory Project Manager: Fritz Grothkopp

Samplers:_____

				Parameters								
Sample #	Matrix	Collect Date	Collect Time	PCBs (EPA 8082)	SVOCs (EPA 8270)	Metals-As/Cu/Pb/Hg/Zn (EPA 200.8/245.1)	Total Organic Carbon (EPA 9060)	Total Solids (SM 2540-G)	TPH - Diesel- and Oil-Range (NWTPH-Dx)		No. of Containers	Comments
KCIA-1541-	Stormwater Vault Sediment											
KCIA-1640-	Stormwater Vault Sediment											
KCIA-1650-	Stormwater Vault Sediment											
KCIA-1657-	Stormwater Vault Sediment											
KCIA-1670-	Stormwater Vault Sediment											
KCIA-1680-	Stormwater Vault Sediment											
KCIA-1756-	Stormwater Vault Sediment											
KCIA-1757-	Stormwater Vault Sediment											
KCIA-	Stormwater Vault Sediment											Field Duplicate

Additional Comments: Total # of containers:

PCB analysis and Total Solids analysis to be conducted on a 1-week turnaround time. All other analyses to be conducted on a normal turnaround time.

RELINQUISHED BY	Date	RECEIVED BY	Date
Signature		Signature	
Printed Name	Time	Printed Name	Time
Organization		Organization	

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